

**29th Annual Blue Ridge Highlands Regional Science Fair
March 6 - 7, 2020 – Radford University**

AWARDS BY PROJECT NUMBER

- 101 Katie Highfield
Quantifying Pre- to Post-Data Involving a Blast Induced Neurotrauma
Blacksburg High School
Sponsor: Katharine Davis
Animal Sciences – Senior Division – Second Place
American Society of Mammalogists Award
United States Air Force Distinguished Achievement Award
- 102 Morgan Ralph
The Facility of Gromphadorhina portentosa to Grind Microplastics
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips
Animal Sciences – Senior Division – Third Place
- 103 Christian Shushok
Openness Factor and Large Mammal Use of Highway Underpasses: An Observational Study of State Mitigation Techniques
Blacksburg High School
Sponsor: Katharine Davis
Animal Sciences – Senior Division – First Place
American Society of Mammalogists Award
Genius Olympiad Award
Virginia Dental Award
- 104 Bradley Turner
Can Implementing Additives to Polyethylene/Honeycomb Increase Galleria mellonella's Appetite for the Material?
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips
Animal Sciences – Senior Division – Honorable Mention
Radford University Scholarship
Wytheville Community College Scholarship
- 202 Anna Addison
Parental Perceptions of the Benefit of Technology in Young Children, Focused in Southwest Virginia
Southwest Virginia Governor's School
Sponsor: Greg Riffe
Behavioral and Social Sciences – Senior Division – Honorable Mention
Mount Tabor Ruritan Club Award – Senior Division

- 207 Diego Elias
Analysis of Public Perception of Climate Change in the New River Valley Using Contingent Valuation
Blacksburg High School
Sponsor: Katharine Davis
Behavioral and Social Sciences – Senior Division – Honorable Mention
American Psychological Society Award
National Oceanic and Atmospheric Administration Award
- 208 Samuel Grove
Nicotine Usage Rates Amongst U.S. Sexual Minority Students
Blacksburg High School
Sponsor: Katharine Davis
Behavioral and Social Sciences – Senior Division – Third Place
Virginia State Science and Engineering Fair Delegate
- 210 Sasha Ronen Halfon-DeLay
Islamophobia in Political Discourse: A Comparison Between the United States, France, Greece, and Sweden
Blacksburg High School
Sponsor: Katharine Davis
Behavioral and Social Sciences – Senior Division – Honorable Mention
- 213 Uche Okoronkwo
The Effect of MMR Facts on Human Views
Southwest Virginia Governor's School
Sponsor: Sherry Pugh
Mount Tabor Ruritan Club Award – Senior Division
- 214 Taylor Rudisill
The Effect of the Generally Accepted Quality for Classical Literature on the Self Esteem of Student Writings in Regards to Their Own Work
Southwest Virginia Governor's School
Sponsor: Sherry Pugh
Behavioral and Social Sciences – Senior Division – Honorable Mention
- 215 Nadine Shannon
Is There an Association Between People with a Morning Versus Evening Chronotype and Variants of the HCRTR2 Gene?
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips
Behavioral and Social Sciences – Senior Division – First Place
Virginia State Science and Engineering Fair Delegate

- 218 Rosemary Wnorowski
Determining the Efficiency of the Container Deposit Laws
Southwest Virginia Governor's School
Sponsor: Greg Riffe
Behavioral and Social Sciences – Senior Division – Second Place
Virginia State Science and Engineering Fair Delegate
- 303 Haley Hansen
Assessing Compliance of Fourth and Fifth Grade Students with a National Backpack Weight Guideline
Southwest Virginia Governor's School
Sponsor: Heather Lowe
Biomedical and Health Sciences; Biomedical Engineering – First Place
Virginia State Science and Engineering Fair Delegate
American Association for University Women Award
Virginia Dental Award
- 304 Kayla Horne
Commonalities in Craniosynostosis Patients
Southwest Virginia Governor's School
Sponsor: Sherry Pugh
Biomedical and Health Sciences; Biomedical Engineering – Second Place
Virginia State Science and Engineering Fair Delegate
Virginia Dental Award
Emory and Henry Scholarship
- 305 Emi Miyazaki and Lexi Nussbaum
Epigallocatechin Gallate Blunts Inflammation Stimulated by Tumor Necrosis Factor- α in Liver Endothelial Cells Under Varying Oxygen States
Blacksburg High School
Sponsor: Katharine Davis
Biomedical and Health Sciences; Biomedical Engineering – Third Place
Biomedical Engineering Award - Virginia Tech
- 306 Lauren Perkins
Efficacy of Charcoal as a Bleaching Agent on Teeth
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips
Biomedical and Health Sciences; Biomedical Engineering – Honorable Mention
American Association for University Women Award

- 401 Cameron Gilmore
Isolating the Periplasmic Region of GacS(39-164) from P. aeruginosa
Blacksburg High School
Sponsor: Katharine Davis
Cell and Molecular Biology – Senior Division – Second Place
Society for In Vitro Biology Award
- 402 Dasol Lee
Stability of the Serine Hydrolase Inhibitor AA74-1
Blacksburg High School
Sponsor: Katharine Davis
Cell and Molecular Biology – Senior Division – Third Place
- 403 Claire Morton
The Division Decision: The Cdc13 Protein and Cell Size Control
Blacksburg High School
Sponsor: Katharine Davis
Grand Award Winner
Cell and Molecular Biology – Senior Division – First Place
Virginia State Science and Engineering Fair Delegate
Virginia Dental Award
Virginia Dental Grand Award
- 501 Allison Adams
Determining Concentrations of Lead in Jewelry Using Inductively Coupled Plasma
Southwest Virginia Governor's School
Sponsor: Jared Brown
Chemistry; Materials Science – Senior Division – Second Place
American Chemical Society, Virginia Blue Ridge Section Award
- 502 Isabella Burgoyne
Using Cellulose Nanocrystals as a Filter for Methane and Nitrogen Dioxide
Southwest Virginia Governor's School
Sponsor: Jared Brown
Chemistry; Materials Science – Senior Division – First Place
American Chemical Society, Northeastern Tennessee Section Award – First Place
ASM Education Foundation Award
United States Air Force Distinguished Achievement Award

- 503 Hannah Dishner
The Extraction of Lead from Cathode Ray Tubes Through the Use of Acidic Water Leaching
Southwest Virginia Governor's School
Sponsor: Jared Brown
Chemistry; Materials Science – Senior Division – Third Place
American Chemical Society, Northeastern Tennessee Section Award – Second Place
American Chemical Society Student Affiliate, Radford University – Senior Division – First Place
United States Agency for International Development
- 504 Megan Layne
How Do Certain Ingredients Affect the Calorie Count in Cookies?
Southwest Virginia Governor's School
Sponsor: Jared Brown
American Chemical Society Student Affiliate, Radford University – Senior Division – Second Place
- 507 Kennedy Williams
Turbidity in Water in a Local Wellness Center Pool
Southwest Virginia Governor's School
Sponsor: Jared Brown
Chemistry; Materials Science – Senior Division – Honorable Mention
American Chemical Society, Northeastern Tennessee Section Award – Third Place
- 601 Brandon Fan
An AI-based System for Early Detection of Natural Disaster and Incidents Using Open Data
Blacksburg High School
Sponsor: Katharine Davis
Computational Biology and Bioinformatics; Systems Software – Senior Division – First Place
Virginia State Science and Engineering Fair Delegate
American Red Cross – New River Valley Science in Service to our Communities Award
National Weather Service Award
Radford University Sigma Xi Chapter Distinguished Award in Science
United States Air Force Distinguished Achievement Award

- 602 Michael Wojdak
Modeling the Effects of Solenopsis invicta Expansion on Other Species
Southwest Virginia Governor's School
Sponsor: Greg Riffe
Computational Biology and Bioinformatics; Systems Software – Senior Division – Second Place
- 701 Emma Freeborn
Evaluating Forest Industry Educational Opportunities in Southwest Virginia
Southwest Virginia Governor's School
Sponsor: Heather Lowe
Earth and Environmental Sciences - Senior Division – Third Place
United States Environmental Protection Agency Letter
- 702 Jack Graves
The Difference of pH and Nitrogen Levels in Natural Ponds Compared to Man-Made Ponds
Southwest Virginia Governor's School
Sponsor: Jared Brown
Earth and Environmental Sciences - Senior Division – Honorable Mention
United States Environmental Protection Agency Letter
- 703 Grace Shen
The Effects of Storm Intensity on the Filtration of Microplastics from Sediment
Blacksburg High School
Sponsor: Katharine Davis
Earth and Environmental Sciences - Senior Division – Second Place
American Meteorological Society Award
Association for Women Geoscientists Award
National Aeronautics and Space Administration Earth System Science Award
United States Environmental Protection Agency Letter
United States Stockholm Junior Water Prize
Virginia Lakes and Watersheds – Senior Division
- 704 Virginia Worrell
Determining the Toxicological Effects of Polyurethane Foam and Complex Leachate on Artemia Nauplii
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips
Grand Award Winner
Earth and Environmental Sciences - Senior Division – First Place
Virginia State Science and Engineering Fair Delegate
United States Environmental Protection Agency Letter
United States Stockholm Junior Water Prize
Virginia Lakes and Watersheds – Senior Division

- 801 Raaj Aggarwal
How Different Levels of pH Affect the Efficiency, Productivity, and Chemical Composition of Hydrogen in Hydrolysis Converters
Southwest Virginia Governor's School
Sponsor: Jared Brown
Energy: Sustainable Materials and Design; Environmental Engineering – Senior Division – Third Place
Ricoh Corporation Sustainable Development Award
United States Environmental Protection Agency Letter
- 802 Mason Baber
An Inquiry Into the Viability and Efficiency of Utilizing Small-Scale Gravitation Water Vortex Turbines in Supplementary Power Production
Southwest Virginia Governor's School
Sponsor: Matthew Frazier
Energy: Sustainable Materials and Design; Environmental Engineering – Senior Division – Honorable Mention
- 803 Adam Downs
Analyzing the Relationship Between Brine Viscosity and Anti-Icing Viability Across Multiple Snow Cycles
Southwest Virginia Governor's School
Sponsor: Jared Brown
Energy: Sustainable Materials and Design; Environmental Engineering – Senior Division – First Place
Virginia State Science and Engineering Fair Delegate
United States Stockholm Junior Water Prize
- 804 Shayla Meadow Utzinger
Analysis of the Pressure Distribution of Differing Widths and Tensions of Backpacking Hammock Straps
Blacksburg High School
Sponsor: Katharine Davis
Energy: Sustainable Materials and Design; Environmental Engineering – Senior Division – Second Place
Genius Olympiad Award
Office of Naval Research Distinguished Achievement Award – Senior Division
United States Environmental Protection Agency Letter
- 901 Curtis Case
Examining Rates of Rowhammer-Type Errors Between Manufacturers of DRAM Chips
Southwest Virginia Governor's School
Sponsor: Matthew Frazier
Engineering Mechanics – Senior Division – Honorable Mention

- 902 Kate Childers
The Application of Fiber Optic Multi-Core Shape Sensing Fibers on Flexible Models
 Southwest Virginia Governor's School
 Sponsor: Matthew Frazier
Engineering Mechanics – Senior Division – First Place
Virginia State Science and Engineering Fair Delegate
United States Metric Association Award
Yale Science and Engineering Association Award
- 903 Keaton Hansen
Simple Stopper Device for Use and Attachment on Existing Shopping Carts
 Southwest Virginia Governor's School
 Sponsor: Matthew Frazier
Engineering Mechanics – Senior Division – Third Place
Office of Naval Research Distinguished Achievement Award – Senior Division
- 904 Henry Myers IV
The Structure of a Quadcopter Drone Under Crash Conditions
 Blacksburg High School
 Sponsor: Katharine Davis
Engineering Mechanics – Senior Division – Second Place
Manufacturing Technology Center Award
New River Community College Scholarship
- 1001 Lauritz Cedric Means Christensen
The Quantification of Gerrymandering in Montgomery County: An Exploration of Cracking in Southwest Virginia
 Blacksburg High School
 Sponsor: Katharine Davis
Mathematics – Senior Division – First Place
Virginia State Science and Engineering Fair Delegate
- 1002 Elizabeth Coleman
The Effects of 3D Models on Understanding the Concept of Integration
 Southwest Virginia Governor's School
 Sponsor: Heather Lowe
Mathematics – Senior Division – Honorable Mention
- 1005 Quinne Jimenez
Static and Emergent Shape Thinking in Contrast to Success in Calculus
 Southwest Virginia Governor's School
 Sponsor: Heather Lowe
Mathematics – Senior Division – Third Place

- 1006 Abigail Musser
Correlation Between Court Location, Hand Contact, and Likelihood of Scoring in Women's Division I College Volleyball
Southwest Virginia Governor's School
Sponsor: Matthew Frazier
Mathematics – Senior Division – Second Place
- 1101 Gage Amesquita
Determining the Effectiveness of Lock Washers in High Vibration Environments
Southwest Virginia Governor's School
Sponsor: Matthew Frazier
Physics and Astronomy – Senior Division – Third Place
Mu Alpha Theta Award
- 1102 Bryan Beckner
Can Gloves Be Introduced to Traditional-Style Drumming Without the Loss of Grip?
Southwest Virginia Governor's School
Sponsor: Matthew Frazier
Physics and Astronomy – Senior Division – Honorable Mention
Radford University Scholarship
- 1103 Grace Mecimore
How Lubricants Affect Nail Penetration in Wood
Southwest Virginia Governor's School
Sponsor: Matthew Frazier
Physics and Astronomy – Senior Division – Second Place
- 1105 Vishvesha Sridhar
Identification of the Gradient Drift Instability in the Sub-auroral Polarization Stream
Blacksburg High School
Sponsor: Katharine Davis
Physics and Astronomy – Senior Division – First Place
Virginia State Science and Engineering Fair Delegate
United States Air Force Distinguished Achievement Award
- 1201 Grace Greenwood
Comparison of the Effects of Sodium Chloride on Spinach Growth as a Function of Soil Types Around Southwest Virginia
Southwest Virginia Governor's School
Sponsor: Jared Brown
American Meteorological Society Award

- 1202 Cassady Marion
The Impact of Arbuscular Mycorrhizal Fungi on Marigold Development in Microplastic-Contaminated Soil
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips
Grand Award Alternate
Plant Sciences – Senior Division – First Place
Virginia State Science and Engineering Fair Delegate
- 1203 Kaleeia Parks
The Effect of Iron Water on Hydroponic Chia Plants
Southwest Virginia Governor's School
Sponsor: Jared Brown
Plant Sciences – Senior Division – Honorable Mention
- 1204 Mason Sproule
Effects of Naphthalene Acetic Acid on Prevention of Holly Berry-Drop
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips
Plant Sciences – Senior Division – Third Place
- 1205 Jacqueline Wang
Effects of Inositol Pyrophosphates on the Growth and Physical Characteristics of Arabidopsis
Blacksburg High School
Sponsor: Katharine Davis
Plant Sciences – Senior Division – Second Place
- 2102 Charlotte Phillips
Measuring Effects of Nicotine on Neuron Activity in Acheta domesticus
Scott Memorial Middle School
Sponsor: Lucas Phillips
Animal Sciences, Biochemistry, Biomedical and Health Sciences – Junior Division – First Place
Broadcom Masters Award
Office of Naval Research Distinguished Achievement Award – Junior Division
- 2103 Hailey Sheppard
Pheel the Burn
Graham Middle School
Sponsor: Holly Smith
Animal Sciences, Biochemistry, Biomedical and Health Sciences – Junior Division – Second Place

- 2201 Austin Barthis & Graham Pittman
Copper Plating (Electroplating)
Wallace Middle School
Sponsor: Becky Pittman
Chemistry – Junior Division – Second Place
- 2202 Sydney Deel & Riley Lowe
Elephant Toothpaste
Tazewell Middle School
Sponsor: Jennifer Lowe
Chemistry – Junior Division – Third Place
- 2203 Lydia Kipp
Time for Tea
Classical Conversations
Sponsor: Beth B. Kipp
Chemistry – Junior Division – First Place
Broadcom Masters Award
- 2301 Molly Jones
What Wood You Use?
Graham Middle School
Sponsor: Holly Smith
*Earth and Environmental Sciences; Energy: Sustainable Materials and Design;
Environmental Engineering; Plant Sciences – Junior Division – Second Place*
Mount Tabor Ruritan Club Award – Junior Division
- 2303 Isaac Meade
How Does Your Garden Grow?
Tazewell Middle School
Sponsor: Deborah Mason
*Earth and Environmental Sciences; Energy: Sustainable Materials and Design;
Environmental Engineering; Plant Sciences – Junior Division – Third Place*
Mount Tabor Ruritan Club Award – Junior Division
Virginia Lakes and Watersheds – Junior Division
- 2304 Charlotte Stevens
From Contaminated to Clean: How Filtering Can Clean Water
Classical Conversations
Sponsor: Cynthia Stevens
*Earth and Environmental Sciences; Energy: Sustainable Materials and Design;
Environmental Engineering; Plant Sciences – Junior Division – First Place*
Broadcom Masters Award
Virginia Lakes and Watersheds – Junior Division

- 2402 Gregory Ghoorahoo
Batter Up! The Difference in Hitting Power
Classical Conversations
Sponsor: Leslie Ghoorahoo
Engineering Mechanics – Junior Division – First Place
Broadcom Masters Award
- 2502 Kripa Patel
Is Black Ink Really Black?
Graham Middle School
Sponsor: Ashley Rebuck
Materials Science – Junior Division – Third Place
- 2503 Elias Stout
Did You Hear That? What Materials Work Best for Soundproofing
Graham Middle School
Sponsor: Holly Smith
Materials Science – Junior Division – First Place
American Chemical Society Student Affiliate, Radford University – Junior Division – First Place
Broadcom Masters Award
Lemelson Early Inventor Award
Office of Naval Research Distinguished Achievement Award – Junior Division
- 2505 Elijah Tomiak
Electromagnets: How Many Coils Are More Powerful
Scott Memorial Middle School
Sponsor: April Schmidt
Materials Science – Junior Division – Second Place
Radford University Sigma Xi Chapter Distinguished Award in Science
- 2601 Aynsley Krum
Through Thick and Thin
Classical Conversations
Sponsor: Marisa Krum
Microbiology – Junior Division – First Place
American Chemical Society Student Affiliate, Radford University – Junior Division – Second Place
Broadcom Masters Award

- 2701 Bethany Abbott
How Does the Shape of a Light Bulb Affect the Luminosity of Light?
Shawsville Middle School
Sponsor: Amy Guerin
Physics – Junior Division – First Place
Broadcom Masters Award
Office of Naval Research Distinguished Achievement Award – Junior Division
- 2703 Jaiden Borich & Alexander Fanning
Piercing Radio Waves
Graham Middle School
Sponsor: Catherine Evans
Physics – Junior Division – Second Place
- 2704 Tiffany Jackson
Voltage Levels in Homemade Batteries
Shawsville Middle School
Sponsor: Amy Guerin
Physics – Junior Division – Third Place
- 2705 Carson Roten
How Does Spring Affect the Trajectory of a Soccer Ball?
Graham Middle School
Sponsor: Ashley Rebuck
Physics – Junior Division – Honorable Mention
- 2706 Amelia Wolfe
Control Your Light!
Graham Middle School
Sponsor: Catherine Evans
Physics – Junior Division – Honorable Mention